

CLAIMS

What is claimed is:

1. A method of calibrating a gravure engraving machine, the method
2 comprising the steps of:
4 providing an engraving signal of a predetermined waveshape to the engraving
machine to cause the engraving machine to produce a gravure cell having a volume;
measuring the volume of the gravure cell using a non-contact optical profiler;
6 comparing the measured volume of the gravure cell to a predetermined cell
volume to obtain a variance indication; and
8 adjusting the engraving machine in accordance with the variance indication.
2. The method of claim 1, wherein the step of adjusting the engraving
2 machine further comprises the step of tuning a resistance potentiometer to vary the
predetermined waveshape.
3. The method of claim 1, wherein the gravure engraving machine
2 engraves a cylinder for a particular ink color and wherein the step of comparing the
measured volume of the gravure cell further comprises the step of selecting the
4 predetermined cell volume in dependence upon the particular ink color.
4. The method of claim 1, wherein the gravure engraving machine
2 engraves a cylinder with a particular engraving stylus and wherein the step of
comparing the measured volume of the gravure cell further comprises the step of
4 selecting the predetermined cell volume in dependence upon the particular engraving
stylus.

5. The method of claim 1, wherein the calibration is undertaken at a
2 number of times during an engraving procedure.

6. The method of claim 1, wherein the non-contact optical profiler is an
2 optical vertical scanning interferometer microscope.

7. A method of calibrating a gravure engraving machine, the method
2 comprising the steps of:
providing an engraving signal of a predetermined waveshape to the engraving
4 machine to cause the engraving machine to produce a gravure cell having a volume;
cleaning the gravure cell;
6 measuring the volume of the gravure cell using a non-contact optical profiler;
comparing the measured volume of the gravure cell to a predetermined cell
8 volume to produce a comparison variance; and
adjusting the engraving machine in accordance with the comparison variance.

8. The method of claim 7, wherein the step of cleaning the gravure cell
2 includes the application of aluminum sesquichlorohydrate to the surface of the
gravure cell.

9. The method of claim 7, wherein the step of adjusting the engraving
2 machine further comprises the step of tuning a resistance potentiometer to vary the
predetermined waveshape.

10. The method of claim 7, wherein the gravure engraving machine
2 engraves a cylinder for a particular ink color and wherein the step of comparing the
measured volume of the gravure cell further comprises the step of selecting the
4 predetermined cell volume in dependence upon the particular ink color.

11. The method of claim 7, wherein the gravure engraving machine
2 engraves a cylinder with a particular engraving stylus and wherein the step of
comparing the measured volume of the gravure cell further comprises the step of
4 selecting the predetermined cell volume in dependence upon the particular engraving
stylus.

12. The method of claim 7, wherein the calibration is undertaken at a
2 number of times during an engraving procedure.

13. The method of claim 7, wherein the non-contact optical profiler is an
2 optical vertical scanning interferometer microscope.

14. A method of calibrating a gravure engraving machine, the method
2 comprising the steps of:

(a) providing a number of engraving signals each of a predetermined
4 waveshape to the engraving machine to cause the engraving machine to produce at
least a plurality of gravure cells each having a volume;

(b) measuring the volume of each of the plurality of gravure cells using a
6 non-contact optical profiler to obtain a maximum volume, a minimum volume, and an
8 average volume for the plurality of gravure cells;

(c) comparing the measured maximum and minimum volumes of the
10 gravure cells to obtain a volume variance;

(d) repeating steps (b) and (c) if the volume variance is greater than a first
12 threshold value;

(e) comparing the measured average volume for the plurality of gravure
14 cells to a predetermined cell volume to obtain an average volume variance if the
volume variance is less than the first threshold value; and

(f) adjusting the engraving machine in accordance with the average
16 volume variance if the average volume variance is below a second threshold.

15. The method of claim 14, wherein step (d) is undertaken a maximum of
2 three times, and including the further step of repeating step (a), if the volume variance
is greater than the first threshold value after the third time that the step (d) has be
4 undertaken, to produce a further plurality of gravure cells and repeating steps (b)
through (f) upon the new plurality of gravure cells.